

For Complete *in vitro* Methylation of DNA for Methylation Analysis



- Methylation of chromatin DNA for DNA accessibility studies.
- Inhibition of endonucleases with overlapping GpC sequence recognition.
- [³H]-labeling of DNA.

Enzyme Concentration

4 units/μl.

Unit Definition

One unit is defined as the amount of enzyme required to “protect” 1 μg of λ DNA against cleavage by HaeIII restriction endonuclease in a total reaction volume of 20 μl for 1 hour at 37°C.

Reaction Conditions

GpC Methylase in 1X GpC Reaction Buffer with 600 μM SAM. Incubate reaction mixtures at 37°C.

Inactivation

Heat-inactivate the enzyme at 65°C for 20 minutes.

Storage

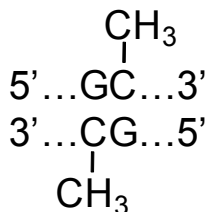
-20°C for up to 12 months. Avoid repeated freeze/thawing. Prolonged storage should be ≤ -70°C.



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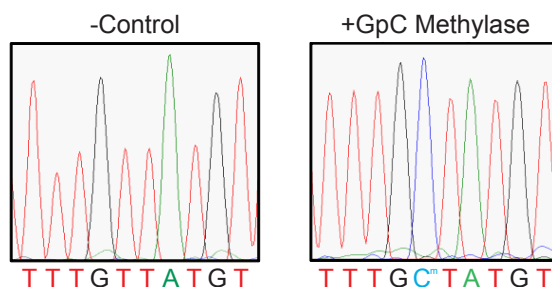
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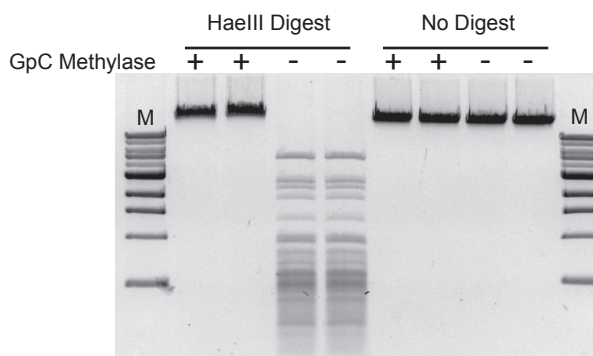


The GpC Methylase (EC 2.1.1.37) from Zymo Research completely methylates all cytosine residues (C5) in double-stranded, non-methylated and hemi-methylated DNA having the dinucleotide sequence 5'...GpC...3'. The recombinant GpC Methylase is isolated from an *E. coli* strain that expresses the methyltransferase gene from a *Chlorella* virus. The reaction conditions are optimized to maximize the processivity of the enzyme to ensure rapid, complete, and reproducible methylation of DNA for accurate DNA methylation analysis.

	Original Sequence	+GpC Methylase
Non-Converted	→ CTCG CC ATGT	CTCG C^m CATGT
Bisulfite Converted	→ TTTG TT ATGT	TTT GC^m TATGT



DNA sequence after bisulfite treatment. Bisulfite-treated DNA converts cytosine to uracil, which reads as thymine upon sequencing. But methylated cytosines remain unconverted. As shown above, treatment of DNA with GpC methylase methylates cytosines in a GpC context.



The GpC Methylase from Zymo Research catalyzes complete methylation of the GpC sites in DNA. Methylase activity of GpC Methylase from Zymo Research was tested for complete methylation of λ DNA using recommended reaction conditions. “Completion” of GpC methylation was assessed by resistance to digestion with a methylation-sensitive endonuclease (HaeIII) and subsequently analyzed in an agarose gel. “M” is a 1kb DNA ladder (Zymo Research).

Ordering Information

Product	Description	Cat. No.	Size
GpC Methylase	Methyltransferase for complete, <i>in vitro</i> DNA Methylation	E2014	200 units
		E2015	1000 units

Related Products

Product	Description	Cat. No.	Size
CpG Methylase	Methyltransferase for complete, <i>in vitro</i> DNA Methylation	E2010	200 units
		E2011	400 units